What You Need to Know About...

PRESCRIPTION STIMULANTS

When taken as prescribed, these medications can safely and effectively treat ADHD. But misusing them has serious health risks, including addiction.

A message from Scholastic and the National Institute on Drug Abuse (NIDA)

You've probably heard of medications like Ritalin or Adderall. These drugs are **prescription stimulants** and must be prescribed by a doctor. They are used to treat **attention deficit hyperactivity disorder (ADHD)**.

ADHD is usually diagnosed

during childhood or adolescence. Kids with ADHD struggle to pay attention, may fidget often, and may be more hyperactive and impulsive than other children their age. Teens with ADHD can find it challenging to finish schoolwork and focus on tasks.

Prescription stimulants can help people with ADHD manage these symptoms, making life easier at school and at home. But misusing these drugs can be dangerous. Some teenagers may take more than what their doctor prescribed, take the medication even though they don't have ADHD, or take someone else's prescription. These teens can wind up with serious health problems, including addiction.

ADHD AND THE BRAIN

Dopamine and **norepinephrine** are two chemicals in your brain. Problem-solving depends on a careful balance of these chemicals. People with ADHD have differences related to these brain chemicals. Prescription stimulants boost and balance levels of dopamine and norepinephrine in the brain. Behavior therapy and these prescription medications can help kids with ADHD pay attention and focus.

DANGERS OF MISUSE

Prescription stimulants are strong medications. Kids who take them to treat ADHD must be carefully monitored by their doctor. A doctor will track changes in ADHD symptoms, watch for side effects, and adjust the dosage if necessary.

Misusing stimulants can be very dangerous—and the effects are unpredictable. What could happen if a teen with ADHD takes a higher dose than prescribed? Or if kids who don't have ADHD try a friend's meds? These kids and teens may experience scary side effects, including a pounding heart, anxiety, extreme anger, and paranoia. They may even experience life-threatening conditions like stroke and heart attack.

ADDICTION RISK

Misusing a prescription stimulant also puts a teenager at risk for **addiction**. The drugs cause a surge of dopamine, which programs the brain to want the drug again. This increases the chance that someone will take the drug over and over, which can lead to addiction.

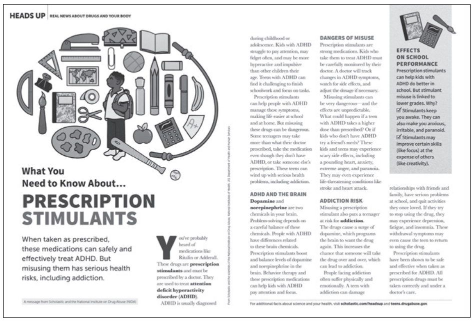
People facing addiction often suffer physically and emotionally. A teen with addiction can damage relationships with friends and family, have serious problems at school, and quit activities they once loved. If they try to stop using the drug, they may experience depression, fatigue, and insomnia. These withdrawal symptoms may even cause the teen to return to using the drug.

Prescription stimulants have been shown to be safe and effective when taken as prescribed for ADHD. All prescription drugs must be taken correctly and under a doctor's care.

EFFECTS ON SCHOOL PERFORMANCE

Prescription stimulants can help kids with ADHD do better in school. But stimulant misuse is linked to lower grades. Why?

- ☑ **Stimulants keep you awake. They can also make you anxious, irritable, and paranoid.**
- ☑ **Stimulants may improve certain skills (like focus) at the expense of others (like creativity).**


HEADS UP REAL NEWS ABOUT DRUGS AND YOUR BODY

What You Need to Know About…

PRESCRIPTION STIMULANTS

When taken as prescribed, these medications can safely and effectively treat ADHD. But misusing them has serious health risks, including addiction.

What You Need to Know About Prescription Stimulants

When used as prescribed by a doctor, prescription stimulants safely and effectively help kids with ADHD. But misuse can be very dangerous. Share the article "What You Need to Know About Prescription Stimulants" to help students understand the very real health risks of misusing these drugs. Then assign the "Important Facts About Addiction" activity sheet, and guide students to synthesize what they have learned by creating an eye-catching infographic for other teens.

Reading Comprehension Questions

1 Why is a prescription stimulant not safe for a person without ADHD? *(Prescription stimulants help boost and balance levels of the chemicals dopamine and norepinephrine in the brains of people with ADHD. Since people without ADHD do not need these drugs to regulate these chemicals, the drugs may affect their brains and bodies in different and possibly dangerous ways.)*

2 How do prescription stimulants help to treat symptoms of ADHD? *(The drugs help boost and balance levels of the chemicals dopamine and norepinephrine in the brains of people with ADHD; this helps people with ADHD focus.)*

3 What are two ways people might misuse prescription stimulants? *(People might misuse prescription stimulants by taking a higher dose than prescribed, using the drugs for reasons other than treating ADHD, or using drugs prescribed for someone else.)*

4 What are three ways misusing prescription stimulants can be dangerous to your health? *(Misusing prescription stimulants can cause a pounding heart, anxiety, extreme anger, paranoia, stroke, and heart attack. It can also lead to addiction.)*

5 How can someone become addicted to prescription stimulants? *(When prescription stimulants are misused, they cause a surge of dopamine in the brain. This increases the chance that the person will use the drugs again. Over time, this can lead to addiction.)*

Critical-Thinking Writing Prompts

Grades 6–8 Explain why a doctor's prescription is needed to obtain prescription stimulants.

Grades 9–10 Imagine your friend is taking prescription stimulants because they believe it helps them do better in school. Write a letter to your friend explaining why this behavior is risky.

Grades 11–12 Use what you learned in the article to explain the illustration. What effects of stimulants are shown?

Remote Learning Suggestions

- **Send** students links or print copies of the student article and student activity, and instruct them to read independently. (For striving readers, record yourself reading the article aloud and instruct them to follow along with the recording.)
- **Use** videoconferencing to discuss the reading comprehension questions together as a class.
- **Have** students complete the student activity on the next page, then create an online folder so they can share their infographics with the class.
- **Wrap** up the lesson with an online or phone discussion synthesizing what they have learned about the importance of prescription stimulants, but also the dangers of misusing them. What facts did they learn from their classmates' infographics?

Subject Areas

- Science, Biology, Public Health
- English Language Arts
- Health/Life Skills

Standards, Grs. 6–12

Common Core State Standards (CCSS)

RI.2 ▶ Summarize key supporting details of a text.

RI.9 ▶ Analyze how two or more texts address similar topics in order to build knowledge.

W.2 ▶ Write informative texts to convey complex ideas and information clearly and accurately through effective selection and organization of content.

Next Generation Science Standards (NGSS)

MS-LS1.D/HS-LS1.D Information Processing

Practice Obtaining, Evaluating, and Communicating Information

Crosscutting Concept Cause and Effect

Additional Lesson Resources

- ▶ Tiered Vocabulary Tools: Visit **scholastic.com/headsup/prescriptionstimulants** for a vocabulary list to support this article.
- ▶ **headsup.scholastic.com/teachers**
- ▶ **teens.drugabuse.gov**

NIH National Institute on Drug Abuse

Important Facts About Addiction

Learn about this disease, then create an infographic to share facts with other teens.

STEP 1: GATHER INFORMATION

Read the passage below and take notes as you read.

What Is Addiction?

When people use drugs over and over—despite the harm to their body and mind, as well as to others—it's an **addiction**. People with an addiction may end up damaging relationships with family and friends and may find it difficult to stay in school or keep a job. They may also stop enjoying activities they once loved.

Who Is at Risk?

There's no one "type" of person who is at risk for drug addiction. However, certain **risk factors** increase a person's chance of addiction, including:

- Using drugs at an early age. (The brain continues to develop until a person's mid-20s.)
- Mental health problems, such as depression
- Having family or friends who use or misuse alcohol or drugs
- Trauma or stressful situations: friends in crisis, extreme hunger, family issues, unsafe housing, financial insecurity

On the other hand, **protective factors** decrease the chance that a person will develop addiction. These include:

- Strong family bonds
- Future goals (e.g., college, career, marriage and family, travel, etc.)
- Strong school connections, on sports teams, in clubs, etc.

It's important to remember that even if someone has risk factors, they may never use or develop a drug addiction. On the flip side, even a person who has protective factors can develop an addiction.

Getting Help

Addiction is treatable. Behavioral therapies and, in some cases, medications that treat the symptoms can help manage the disease. If you or someone you know needs help, visit **findtreatment.samhsa.gov** or call **800-662-4357** to find addiction treatments in your area.

STEP 2: CREATE AN INFOGRAPHIC

Studies show that some teens put themselves at risk of addiction by misusing prescription stimulants and other drugs. How can you help?

- Create an eye-catching infographic that explains the risks to teens
- Include a mix of text and visuals, such as diagrams, graphs, and images

From Scholastic and the scientists of the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services

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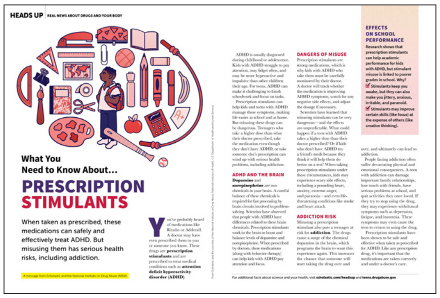
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You've probably heard of medications like Ritalin or Adderall. A doctor may have even prescribed them to you or someone you know. These drugs are **prescription stimulants** and are prescribed to treat medical conditions such as **attention deficit hyperactivity disorder** (ADHD).

ADHD is usually diagnosed during childhood or adolescence. Kids with ADHD struggle to pay attention, may fidget often, and may be more hyperactive and impulsive than other children their age. For teens, ADHD can make it challenging to finish schoolwork and focus on tasks.

Prescription stimulants can help kids and teens with ADHD manage these symptoms, making life easier at school and at home. But misusing these drugs can be dangerous. Teenagers who take a higher dose than what their doctor prescribed, take the medication even though they don't have ADHD, or take someone else's prescription can wind up with serious health problems, including addiction.

ADHD AND THE BRAIN

Dopamine and **norepinephrine** are two chemicals in your brain. A careful balance of these chemicals is required for fast processing by brain circuits involved in problem-solving. Scientists have observed that people with ADHD have differences related to these brain chemicals. Prescription stimulants work in the brain to boost and balance levels of dopamine and norepinephrine. When prescribed by doctors, these medications (along with behavior therapy) can help kids with ADHD pay attention and focus.

DANGERS OF MISUSE

Prescription stimulants are strong medications, which is why kids with ADHD who take them must be carefully monitored by their doctor. A doctor will track whether the medication is improving ADHD symptoms, watch for any negative side effects, and adjust the dosage if necessary.

Scientists have learned that misusing stimulants can be very dangerous—and the effects are unpredictable. What could happen if a teen with ADHD takes a higher dose than their doctor prescribed? Or if kids who don't have ADHD try a friend's meds because they think it will help them do better on a test? When taking prescription stimulants under these circumstances, kids may experience scary side effects, including a pounding heart, anxiety, extreme anger, and paranoia—and even life-threatening conditions like stroke and heart attack.

ADDICTION RISK

Misusing a prescription stimulant also puts a teenager at risk for **addiction**. The drugs cause a surge of the chemical dopamine in the brain, which programs the brain to want this experience again. This increases the chance that someone will start taking the drug over and over, and ultimately can lead to addiction.

People facing addiction often suffer devastating physical and emotional consequences. A teen with addiction can damage important family relationships, lose touch with friends, have serious problems at school, and quit activities they once loved. If they try to stop using the drug, they may experience withdrawal symptoms such as depression, fatigue, and insomnia. These symptoms may even cause the teen to return to using the drug.

Prescription stimulants have been shown to be safe and effective when taken as prescribed for ADHD. Like any prescription drug, it's important that the medications are taken correctly and under a doctor's care.

EFFECTS ON SCHOOL PERFORMANCE

Research shows that prescription stimulants can help academic performance for kids with ADHD, but stimulant misuse is linked to poorer grades in school. Why?

☑ Stimulants keep you awake, but they can also make you jittery, anxious, irritable, and paranoid.

☑ Stimulants may improve certain skills (like focus) at the expense of others (like creative thinking).

For additional facts about science and your health, visit **scholastic.com/headsup** and **teens.drugabuse.gov**

From Scholastic and the scientists of the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services

Find the article at:
scholastic.com/headsup/prescriptionstimulants

addiction *(noun)*: a brain disorder or illness associated with compulsive (uncontrollable) behavior, such as drug use, despite negative consequences

anxiety *(noun)*: feelings of worry or fear that may be strong enough to interfere with a person's daily activities

attention deficit hyperactivity disorder (ADHD) *(noun)*: a brain disorder that can lead to symptoms such as difficulty paying attention or staying organized as well as hyperactivity, frequent fidgeting, impulsivity, and restlessness

circuit *(noun)*: a path between points over which signals can move

consequence *(noun)*: a result or outcome

devastating *(adjective)*: causing great danger or harm

diagnose *(verb)*: to identify the presence of a disease or condition by its symptoms

dopamine *(noun)*: a chemical in the brain that helps send signals between nerve cells and is associated with feelings of pleasure

dose *(noun)*: the measured amount of a chemical such as a drug to be taken at one time

hyperactive *(adjective)*: extremely active or too active

impulsive *(adjective)*: doing something or tending to do something suddenly without careful planning or thought

norepinephrine *(noun)*: a chemical produced and released when the body is under stress; it has many effects on the body including increasing heart rate

paranoia *(noun)*: a disorder in which a person feels extreme distrust or threatened by others, even when there is no evidence to support that feeling

prescription stimulant *(noun)*: a drug that causes a temporary increase in activity in parts of the brain and body. A prescription stimulant must be ordered by a doctor before it can be dispensed.

withdrawal symptom *(noun)*: a physical change that occurs as part of the body's response to the sudden removal of a drug to which it has gotten used to being exposed